Test Report on Cement

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri. E Ramesh Anand
Sample ID	Cement (ACC Cement) OPC 43 Grade
Date of Sample Tested	04-12-2019
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	102 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	432 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	5mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	27.00%	

Remarks : Satisfactory / Not Satisfactory

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4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

TEJUS CONSULTANTS

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	M/s Sri. E Ramesh Anand				
Total Weight:	10000	gms			

SIEVE ANALYSIS

Type of Material	**12.5 mm down size**		**Proposed Use**	Concrete	
Sample Location	Plant		**Date of Sampling**	04-12-2019	
			Date of Testing	04-12-2019	
IS Sieve Size (in mm)	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
20.0	0	0	0	100	100
12.5	576	576	5.76	94.24	90-100
10.0	3346	3922	39.22	60.78	40-85
4.75	5428	9350	93.50	6.50	0-10
Pan	650	10000			

Remarks : Satisfactory / Not Satisfactory

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri. E Ramesh Anand

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**M sand**	**Proposed Use**	Concrete
Location/Source	**At Plant**	**Date of Sampling**	04-12-2019
Period of Soaking	**24 hours**	**Date of Testing**	05-12-2019

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.	660	656	670	
B	Weight of oven - dry sample gm.	652	648	662	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1690	1688	1696	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.661	2.667	2.659	**2.662**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.227	1.235	1.208	**1.223**

Remarks : ✓ Satisfactory / Not Satisfactory

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Test Report on Compressive Strength of Concrete Cubes

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	04-12-2019	01-01-2020	28 days	8.582	22500	678	30.13	30.28
2	04-12-2019	01-01-2020	28 days	8.762	22500	680	30.22	
3	04-12-2019	01-01-2020	28 days	8.560	22500	686	30.49	

Remarks : Satisfactory / Not Satisfactory

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Test Report on Compressive Strength of Concrete Cubes

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	04-12-2019	11-12-2019	7 days	8.822	22500	439	19.51	19.51
2	04-12-2019	11-12-2019	7 days	8.865	22500	438	19.47	
3	04-12-2019	11-12-2019	7 days	8.722	22500	440	19.56	

Remarks : ✓ Satisfactory / Not Satisfactory

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Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/s Sri.E Ramesh Anand

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date of Testing	**09-12-2019**		
Layer no. or level	GSB layer		
Depth of hole	200mm		
Field density:			
Chainage	1	2	2
Wt. of wet material from hole (Ww) gms.	5980	5970	5992
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000	15000
Wt. of sand in hole+ cone (w3) gms.	10586	10576	10572
Wt. of cone gms.	4414	4424	4428
Wt. of sand gms.	1080	1080	1080
Bulk density of sand (γs)gm/cc	3334	3344	3348
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.32	1.32	1.32
	2.37	2.36	2.36
Moisture meter reading(moisture content)			
	6.40	6.50	6.40
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.21	2.22
MDD	2.25	2.25	2.25
OMC	6.30%	6.30%	6.30%
% compaction obtained	98.90	98.34	98.68
% compaction required	98%	98%	98%

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GRADATION FOR GSB
(As per MORT&H 400-4,Grading-II)

Name of Work	:	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	:	BRUHAT RANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s Sri.E Ramesh Anand
Date of Testing	:	
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	Date of Sampling:	09-12-2019
Type of material & Purpose:	GSB	Date of testing:	10-12-2019
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	-
53	0	0	0.00	100.00	100.00
26.5	2268	2268	22.68	77.32	70-100
9.5	2422	4690	46.90	53.10	50-80
4.75	902	5592	55.92	44.08	40-65
2.36	1206	6798	67.98	32.02	30-50
0.425	1972	8770	87.70	12.30	10-15
0.075	836	9606	96.06	3.94	<5
Pan	394.0				
Total	10000.0				

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Test Report on Cement

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Sample ID	Cement
Date of Sample Tested	11-12-2019
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	98 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	412	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	4mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

Remarks : Satisfactory / Not Satisfactory

TEJUS CONSULTANTS

Consultant's Representative

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri.E Ramesh Anand

SPECIFIC GRAVITY AND WATER ABSORPTION
FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**M sand**	**Proposed Use**	P.C.C
Location/Source	**At Laboratory**	**Date of Sampling**	11-12-2019
Period of Soaking	**24 hours**	**Date of Testing**	12-12-2019

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.		660	656	672	
B	Weight of oven - dry sample gm.		652	648	664	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1690	1688	1697	
E	Bulk specific gravity	B / (C + A - D)	2.661	2.667	2.656	**2.661**
G	Absorption (%)	(A - B) *100 / B	1.227	1.235	1.205	**1.222**

Remarks : ✓ Satisfactory / Not Satisfactory

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri.E Ramesh Anand

SIEVE ANALYSIS

Total Weight:	**3000** gms				
Type of Material	**Fine aggregate (River Sand/M sand)**		**Proposed Use**	P.C.C	
Sample Location	At Plant/site		**Date of Sampling**	11-12-2019	
			Date of Testing	11-12-2019	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	226	226	7.53	92.47	**90 - 100**
2.36 mm	284	510	17.00	83.00	**75 - 100**
1.18 mm	532	1042	34.73	65.27	**55 - 90**
0.600 mm	496	1538	51.27	48.73	**35 -59**
0.300 mm	632	2170	72.33	27.67	**8-30**
0.150 mm	612	2782	92.73	7.27	**0 - 10**
Pan	218	3000			**-**

Remarks : Satisfactory / Not Satisfactory

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TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri. E Ramesh Anand

SPECIFIC GRAVITY AND WATER ABSORPTION
FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**M sand**	**Proposed Use**	Concrete
Location/Source	**At Plant**	**Date of Sampling**	18-12-2019
Period of Soaking	**24 hours**	**Date of Testing**	19-12-2019

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.	632	656	672	
B	Weight of oven - dry sample gm.	624	648	664	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1672	1688	1698	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.655	2.667	2.667	**2.663**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.282	1.235	1.205	**1.240**

Remarks : ✓ Satisfactory / Not Satisfactory

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike	
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11	
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore	
Contractor	M/s Sri. E Ramesh Anand	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	**12.5 mm down size**		**Proposed Use**	Concrete	
Sample Location	Plant		**Date of Sampling**	18-12-2019	
			Date of Testing	18-12-2019	
IS Sieve Size (in mm)	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
20.0	0	0	0	100	100
12.5	592	592	5.92	94.08	90-100
10.0	3362	3954	39.54	60.46	40-85
4.75	5490	9444	94.44	5.56	0-10
Pan	556	10000			

Remarks : Satisfactory / Not Satisfactory

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike				
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11				
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore				
Contractor	M/s Sri. E Ramesh Anand				
Total Weight:	10000	gms			

SIEVE ANALYSIS

Type of Material	20 mm down size	**Proposed Use**	Concrete	
Sample Location	At Plant	**Date of Sampling**	18-12-2019	
		Date of Testing	18-12-2019	

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
40.00 mm	0	0	0	100	100
20.00 mm	276	276	2.76	97.24	95 - 100
10.00 mm	4652	4928	49.28	50.72	25 - 55
4.75 mm	4582	9510	95.10	4.90	0 - 10
Pan	490	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

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Test Report on Cement

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri. E Ramesh Anand
Sample ID	Cement (ACC Cement) OPC 43 Grade
Date of Sample Tested	18-12-2019
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	94 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	398	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	6mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

Remarks : Satisfactory / Not Satisfactory

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TEST REPORT	
Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri. E Ramesh Anand

SIEVE ANALYSIS

Total Weight:	3000 gms				
Type of Material	**Fine aggregate (M sand)**		**Proposed Use**	Concrete	
Sample Location	**At Plant**		**Date of Sampling**	18-12-2019	
			Date of Testing	18-12-2019	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	236	236	7.87	92.13	**90 - 100**
2.36 mm	278	514	17.13	82.87	**75 - 100**
1.18 mm	408	922	30.73	69.27	**55 - 90**
0.600 mm	570	1492	49.73	50.27	**35 -59**
0.300 mm	748	2240	74.67	25.33	**8-30**
0.150 mm	536	2776	92.53	7.47	**0 - 10**
Pan	224	3000			**-**

Remarks : Satisfactory / Not Satisfactory

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TEJUS CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	18-12-2019	15-01-2020	28 days	8.486	22500	692	30.76	30.70
2	18-12-2019	15-01-2020	28 days	8.324	22500	694	30.84	
3	18-12-2019	15-01-2020	28 days	8.422	22500	686	30.49	

Remarks : Satisfactory / Not Satisfactory

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Test Report on Compressive Strength of Concrete Cubes

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	18-12-2019	25-12-2019	7 days	8.224	22500	440	19.56	19.53
2	18-12-2019	25-12-2019	7 days	8.326	22500	436	19.38	
3	18-12-2019	25-12-2019	7 days	8.432	22500	442	19.64	

Remarks : ✓ Satisfactory / Not Satisfactory

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Ramaiah Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri.E Ramesh Anand

SIEVE ANALYSIS

Total Weight:	**3000** gms				
Type of Material	**Fine aggregate (River Sand/M sand)**		**Proposed Use**	P.C.C	
Sample Location	At Plant/site		**Date of Sampling**	04-01-2020	
			Date of Testing	04-01-2020	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	238	238	7.93	92.07	**90 - 100**
2.36 mm	286	524	17.47	82.53	**75 - 100**
1.18 mm	526	1050	35.00	65.00	**55 - 90**
0.600 mm	484	1534	51.13	48.87	**35 -59**
0.300 mm	622	2156	71.87	28.13	**8-30**
0.150 mm	614	2770	92.33	7.67	**0 - 10**
Pan	230	3000			**-**

Remarks : Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory /Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

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TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/s Sri.E Ramesh Anand

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**M sand**	**Proposed Use**	P.C.C
Location/Source	**At Laboratory**	**Date of Sampling**	04-01-2020
Period of Soaking	**24 hours**	**Date of Testing**	05-01-2020

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.	632	674	670	
B	Weight of oven - dry sample gm.	622	666	660	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1673	1698	1697	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.658	2.653	2.661	**2.658**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.608	1.201	1.515	**1.441**

Remarks : Satisfactory / Not Satisfactory

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Test Report on Cement

Project	Improvements to Roads and Drains at Lakkappa Layout, Singapura Paradise, Hosabalu Nagara, MS Palya Vinayaka Nagara and Raghuram Layout in Ward No.11
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/s Sri.E Ramesh Anand
Sample ID	Cement
Date of Sample Tested	04-01-2020
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	101 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	390	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	5mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	26.00%	

Remarks : Satisfactory / Not Satisfactory

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